

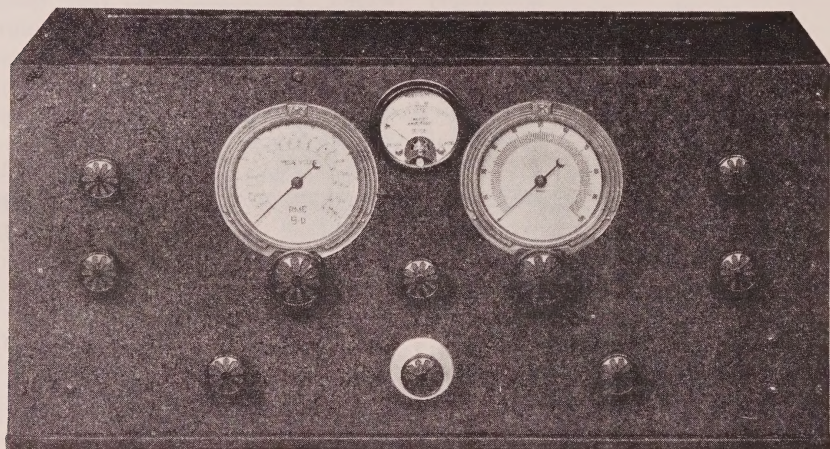
California Antique Radio Gazette

Official Journal, Southern California Antique Radio Society.

VOLUME 14

NOVEMBER 1989

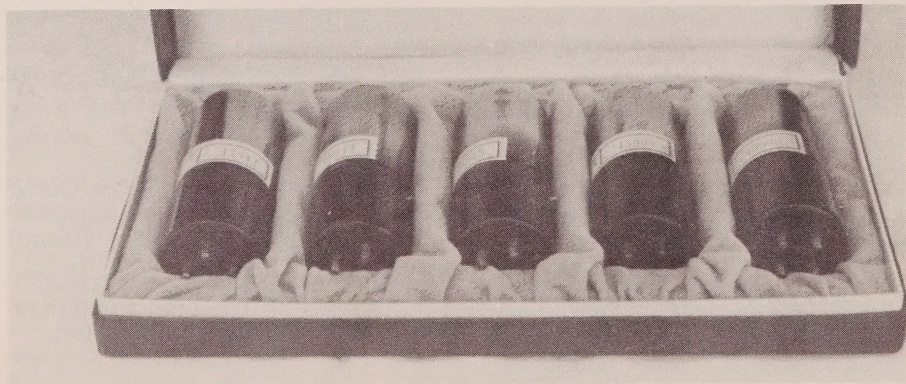
NUMBER 4



RME-9 SINGLE-SIGNAL SUPER

540 KC to 22000 KC

(See Articles Inside)



BRIGHTSON TRUE BLUE TUBES

SOUTHERN CALIFORNIA ANTIQUE RADIO SOCIETY

Incorporated, Non-profit Organization

SCARS OFFICERS

PRESIDENT

Walter Curry
10035 Country View Road
La Mesa, CA 92041

SECRETARY

Edward Sheldon
656 Gravilla Place
La Jolla, CA 92037

VICE PRESIDENT

Joe Knight
132 N. Grand Ave. "F"
San Pedro, CA 90731

TREASURER

Mary Curry
10035 Country View Road
La Mesa, CA 92041

MEMBERSHIP SECRETARY

Mary Ireland
24100-E Avenida Rancheros
Diamond Bar, CA 91765

CO-EDITORS of the GAZETTE

Joe Knight
132 N. Grand Ave. "F"
San Pedro, CA 90731

Floyd A. Paul
1545 Raymond Ave.
Glendale, CA 91201

EDITORIAL SUPPORT

Bruce McCalley
2039 Evergreen St.
Burbank, CA 91505

HISTORIAN

Paul Thompson
315 Larkspur Drive
Santa Maria, CA 93455

CONTEST CHAIRPERSON

Chuck Strozier
24100-E Avenida Rancheros
Diamond Bar, CA 91765

PHOTOGRAPHER

Deanna Hames
Rt. 5,
7700 Reynolds Ave.
Bakersfield, CA 93307

PROGRAM CHAIRMAN

Morgan McMahon
26356 Eastview Court
San Juan Capistrano, CA 92675

NO. CALIF. REP.

Mike Adams
112 Crescent Court
Scotts Valley, CA 95066

BOARD OF DIRECTORS

Mary Curry, Walter Curry, Joe Knight, Bruce McCalley, Bill Davies, Morgan McMahon, Arlo Myers, Floyd Paul, Edward Sheldon, Charles Strozier, Robert Zelenack

SCARS is a non-profit organization. Its purpose is to preserve the history of wireless communication by encouraging the acquisition, preservation and exhibition of antique wireless and radio apparatus and publications pertaining to its history and development.

SCARS promotes social contacts through meetings held four times a year at various locations in Southern California. Featured at these meetings are contests, swap sessions and talks by members and guests on subjects of interest to collectors.

The club publishes quarterly the *California Antique Radio Gazette* which features news of club activities, hints on restoration, and advertisement of radio related items available for sale or trade. It is furnished free to all members. Ads are printed free for members. SCARS assumes no responsibility for the condition of items sold at swap meets or through *Gazette* ads.

Membership is open to anyone having a genuine interest in preserving equipment and history of early wireless and radio equipment. Dues are \$10.00 per calendar year.

ADDRESS INQUIRIES TO:

Official Correspondence Walter Curry
Application to Join Edward Sheldon
Submittal of Dues Mary Ireland
Gazette Articles and Ads Joe Knight or Floyd Paul

The opinions expressed in the *Gazette* are those of the authors and may not reflect the opinions of the editors or the SCARS membership.



➤ **NOV. 17 & 18 MEETING**
RAMADA INN
 12500 E. Firestone Blvd.
 Norwalk, Calif. ➤
 (Details on Enclosed Flier)

PRESIDENT'S MESSAGE

My term as president has been rewarding for me and I would like to thank all the other officers and directors for helping me make this a banner year for SCARS. Our membership is at 800, third largest in the country.

The year isn't over yet and we have saved the best for last. After several years of looking SCARS has, hopefully, found a place offering reasonable room rates with meals, meeting, and swap meet facilities.

A two day meeting is planned at the Ramada Inn in Norwalk for Nov. 17 and 18 with two talks, a mini-auction and a demonstration of a giant Tesla Coil. Plus, of course, a two day swap meet. Our rooms will directly face the swap meet area. What more could a die hard collector ask for? See you there.

Walt Curry

ANNUAL DUES

The Gazette and your membership are on a calendar year basis. This November *Gazette* is the last issue for 1989. To receive the next issue, and to pay dues for 1990, please send \$10 (\$11 for member and spouse) in the enclosed envelope.

ANNOUNCEMENTS

The November Meeting will have the nomination and election of Officers and Directors for 1990.

Only SCARS members may sell at SCARS meets.

THE BIG EVENT

Early evening demonstration of Tesla coil in Swap Meet area. Keep time open to see 2-1/2 million volts on the loose. Chuck Strozier will answer any questions on the demonstration.

REGISTRATION FEES

Registration fees are for everyone coming to the meets. These are typically \$1 to \$3 per person. The price of the meal(s) at the SCARS meets only covers the meal(s) itself. The registration fees help pay for the parking lot, the meeting room, and other facilities.

NEW MEMBER POLICY

Membership in SCARS follows the current calendar year. Anyone joining during Jan.-Sept. is enrolled for the current year and is sent all back issues of the *Gazette* for the current year. The member then continues to receive the rest of the current year's *Gazettes*.

Applicants for membership after Sept. are enrolled as members for the following year. They receive a notice of the year end meeting as well as other current club announcements and are told they will commence receiving *Gazettes* during the next year.

GAZETTE DEADLINES

All ads, material and articles for SCARS *Gazette*:

February issueDecember 1
 May issue March 1
 August issueJune 1
 November issueSeptember 1

FILAMENT DROPPING RESISTORS

By Walter Curry

The Problem

The depression days of the 1930's forced manufacturers to develop simple, cheap table sets. One costly item to eliminate was the power transformer. Connecting the filaments in series directly across the power line was the answer and a series of tubes were developed with equal filament current ratings of 0.3 amperes. Of these, the output and rectifier tubes had the greatest filament power requirements so 25 volt filaments were developed for these tubes. Typical examples were types 43, 25A6, and 25L6 power output tubes and 25Z5 and 25Z6 rectifiers.

Four to six tube chassis using these tubes were designed as cheaply and compactly as possible and crammed into the smallest, cheapest cabinets that would hold them. The heat dissipation from the filaments alone varied from about 19 watts for a 4 tube set to 23 watts for a 6 tube set. This may not sound like much, but it was enough to build up heat in the small cabinets and roast components causing reliability problems, notably with capacitors.

These 0.3 amp. filament strings would typically require only 62 to 78 volts, therefore some manufacturers installed a power resistor or a ballast tube in the cabinet to drop the line voltage resulting in an additional 14 to 22 watts being dissipated inside the cabinet. It didn't help if a "candohm" resistor was used with the chassis as a heat sink, since there was nothing to sink the chassis itself.

The Thirties Solution

Faced with this problem, manufacturers thought of using capacitors to drop the voltage while dissipating little power, but the size and cost of the capacitors made them impractical. About the only possibility left at the time was a line cord resistor which took the dropping resistor power dissipation completely out of the cabinet. It consisted of a regular line cord with one insulated wire spiral wrapped with resistance wire. These cords failed regularly due to overheating and resultant wire breakage and insulation breakdown. People would leave them coiled up or trail them past a steam radiator instead of stretching them out in a cool place.



**AC-DC SET
LINE CORDS**

Line cord with built-in resistor which supplies proper filament voltage for the popular .3 amp. metal and glass tubes when they are connected in series. Shpg. wt., 1 lb.

No.	Ohms	Filament Drop
B7207	360	10.0 to 17.0 V.
B7206	530	18.0 to 24.0 V.
B7205	290	25.2 to 31.5 V.
B7204	250	32.0 to 44.5 V.
B7203	220	45.0 to 52.0 V.
B7202	180	53.0 to 61.0 V.
B7201	160	56.5 to 68.9 V.
B7200	135	68.9 to 75.2 V.

YOUR PRICE
EACH **30c**

From 1936 parts catalog

The Restoration Problem

What choices does the collector have if the line cord resistor has failed? These line cords are no longer being manufactured and most new old stock cords the author has seen had brittle and failed insulation. The restorer must therefore use a regular line cord while keeping heat out of the cabinet. This rules out putting a power resistor on the chassis unless

the set will only be run for short periods to prevent overheating. Since these small cheap sets are now riding the crest of the art-deco craze, there is some urgency to this problem.

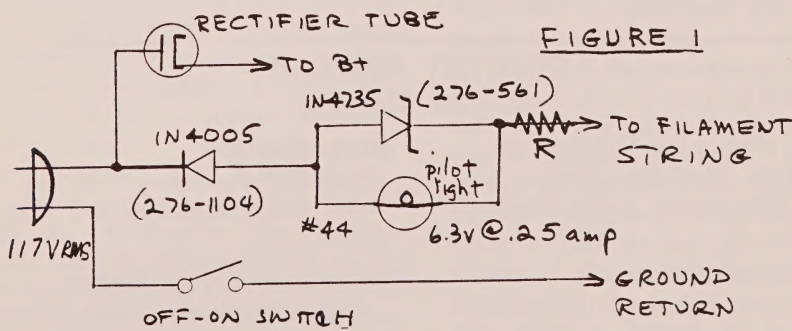
A Solution

Antique Electronic Supply markets a solid state current regulator which looks like it will (the author has not tested the product) do the job but is relatively expensive and may not fit under a crowded chassis easily. A solution using a series diode is offered here using parts from Radio Shack or elsewhere costing about \$1 total. The two or three parts required can easily be tucked under the chassis.

Although a diode in series with the filament string is not a new idea, the author has yet to see an accurate analysis of its application. Analysis shows that the heating or RMS value of $1/2$ cycle of line voltage is equivalent to .707 times the RMS value of a full cycle of line voltage. Thus with a 117 volt line the theoretical heating value that could be delivered by a diode to the filament string is 83 volts RMS. Observed diode and wiring losses reduced this to about 78 volts.

There is a problem concerning the pilot light. As tubes heat up their resistance can rise to a value 6 to 10 times that when cold. Tube filaments are designed to withstand a high cold surge current, and do so in all sets with power transformers. However, pilot light filaments are more fragile and heat up faster than tube filaments, resulting in overvoltage and pilot light burnout in a series string if surge current is not limited as with a line dropping resistor.

The solution is to shunt the pilot light with a zener diode to limit the voltage across it during warmup. A practical circuit is shown in figure 1, with Radio Shack part numbers for the diodes. Note that the diodes are oriented to conduct on the negative half cycles while the typical B+ rectifier conducts on positive half cycles. This will reduce hum. The chart in figure 2 shows the design center values of R for various filament string combinations with 117 VRMS, making allowance for circuit losses. Heat dissipation is typically a couple of watts.



A Note On Instrumentation

The values in Figure 2 were determined using a Weston electro-dynamometer voltmeter sensitive to true RMS or heating value and 1% accurate to 1000 cycles. The half cycle waveform is rich in harmonic content and the meter had to accurately sum the RMS values of the wave components, up to the 16th harmonic in this case. Readers should note that most meters are calibrated in RMS but actually

respond to average or peak values and will not accurately read the voltages in this circuit, due to the non-linear waveform.

As there was some question of the Weston being able to accurately read the half-wave form it was checked using a home brew AC-DC color-temperature transfer standard which proved it to be within 1%. Good old Weston! The transfer standard will be the subject of a future article on test equipment.

FIGURE 2

<u>FILAMENT</u>	<u>PILOT</u>	<u>R</u>
<u>STRING VRMS</u>	<u>LIGHT</u>	
62.6	NO	50 Ω /5W
62.6	YES	40 Ω /5W
68.9	NO	30 Ω /5W
68.9	YES	20 Ω /5W
75.2	NO	10 Ω /2W
75.2	YES	10 Ω /2W
25.2*	NO	175 Ω /25W

* 4-6 VOLT TUBES AS IN KADETTES. THIS IS
A WORST CASE. MOUNT R ON TOP OF CHASSIS
NOTE: EXCLUDE ZENER DIODE (IN 4735) WHERE
NO PILOT LIGHT IS USED.

CONTEST RESULTS

August Meeting

1 & 2 tube plus Crystal set
1st Oral Boudreau, Crosley 51
2nd Les Rayner, Freed Eisemann
Marvel

Homebrew & Kits

1st Arlo Myers, Communication
rcvr.
2nd Kenneth Acord, Xtal set

Horn Speaker

1st Oral Boudreau, Teletone
2nd Oral Boudreau, R-3 Magna-
vox

Transistor Bottle Radio

Non-competitive- Nancy Zelenack
Judges were Bob Baumbach & Jack
Hermann

Instruments and Measurements

By Ed Sheldon
The Ohmmeter -- Part II



In the mid-1930s the 20,000 ohms/volt (50 micro-amps) meter made its appearance. By 1939 almost all manufacturers had 20,000 ohms/-volt meters on the market. With these instruments, resistance measurements to 30 megohms could be made. With an outside 45 volt battery it was possible to make measurements to around 100 megohms.

At this point a phenomenon called "Dielectric Absorption" becomes a factor in the condenser leakage measurement. (When the author was doing radio service during the 1930s he never heard of dielectric absorption, and unfortunately very little mention of it appears in the service literature. So, a little discussion seems in order.)

Dielectric absorption is energy that is absorbed in a dielectric material and is not immediately recoverable. When a condenser having an appreciable amount of dielectric absorption is connected to an ohmmeter there is a large charging current followed by a small current flow. This secondary current may continue to flow for several minutes or sometimes longer, making the reading of the condenser leakage time dependent. Fortunately gases and air do not have this property, but paper, mylar, and other dielectrics do. Ordinarily the instruments used for radio servicing are of low sensitivity and this phenomenon is not familiar to many radio servicemen. However, when using instruments having a range of 100 meg-

ohms to 1,000 megohms (which is needed to properly test coupling condensers), dielectric absorption can easily be detected.

In the February issue of the *Gazette*, the ohmmeter was introduced as a radio service bench tool in the late 1920s. Many of the early ohmmeters used a 1 ma. meter which was considered sensitive at that time, but which limited the range of measurements to resistance values around 1 megohm. At a later date a few volt-ohmmeters contained a 45 volt battery and with this instrument 10 megohms could be measured. The introduction of the AC powered set in the late 1920s was followed by the extensive use of RC coupled audio amplifiers. These developments in turn were soon followed by the introduction of linear diode detection and automatic gain control/automatic volume control (agc/avc). These circuits often used duplex diode high- μ triodes such as the types 75 or 2A6 which use very low values of bias voltage (1 to 2 volts) and are adversely affected by small changes in bias.

The high resistances used in agc systems and in rc coupled amplifiers particularly in those using high- μ triodes places stringent requirements on the allowable leakage of the associated capacitors. When you consider that the leakage value of a condenser may easily degrade by a factor of 10 due to the temperature rise after a couple of hours of operation it is clear that many

ohmmeters were totally inadequate to do good radio service work. One reason that "recapping" of radios is so popular today is an attempt to "bypass" this problem. Well and good, but how do you know that the replacement condensers are not leaking?

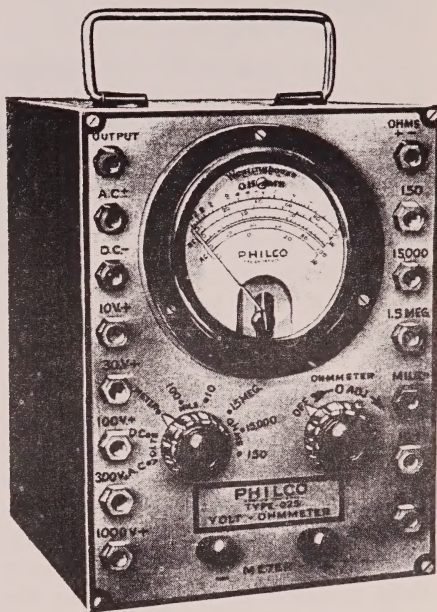
Ohmmeters are most accurate in the middle of the scale and when properly used will quickly give readings that are reliable to within 10% of full scale. The battery resistance which is in the measurement circuit in the simple ohmmeter can contribute large errors to low resistance measurements. In small batteries, such as those used in ohmmeters, the resistance may vary from 1/3 ohm to 20 ohm or more per battery cell. Usually the ohmmeter is designed to use the battery in the range from 1.5 down to 1.3 volts/cell. At this point the "zero" balance cannot be obtained and the battery must be changed.

When highly accurate measurements are required it is best to use a bridge. Bridge measurements however may be speeded up by first measuring the unknown resistance with an ohmmeter.

There were many American ohmmeter manufacturers. When the functions of the measurement of voltage and current were combined with the ohmmeter as it was most of the time it was called Volt ohmmeter or VOM. In the early days Weston and Jewell were the best known to the radio trade.

Weston bought Jewell around 1931 and after a couple of years the company (Jewell) ceased to exist. Ray Simpson, a former owner of Jewell started Simpson Electric Co. in 1936 and ran this company until 1950 when he sold out to American Gage and Machine Co.

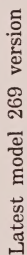
It may surprise some of you to know that Philco was also marketing radio test equipment. Pictured here is the Philco model 025 VOM.

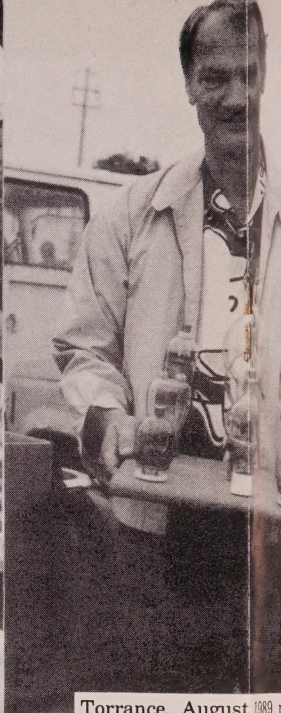
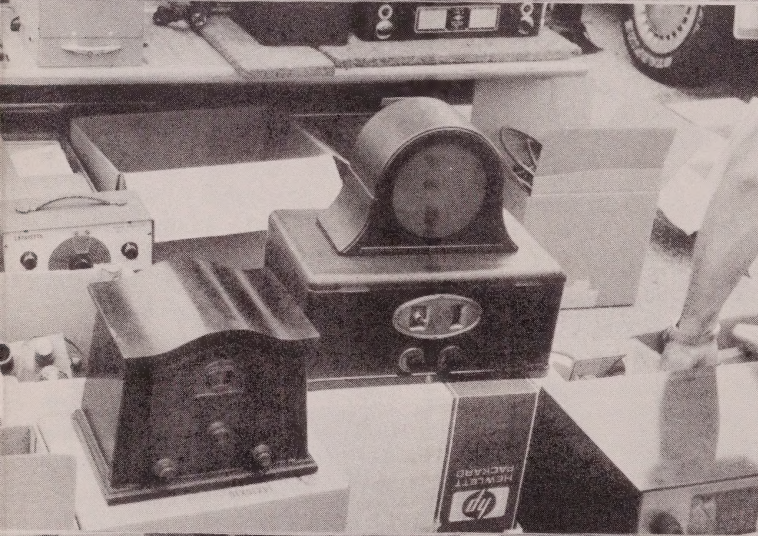


Philco Model 025

Two Simpson instruments which the author owns, uses, and considers to be outstanding are the Simpson Telephone Industry Test Set, the 20,000 ohms/volt VOM on which the highest resistance range goes to 200 megohms. Both of the above instruments have been in production for over 25 years. They are quite expensive to buy new but they do show up at swap meets which is where mine came from. Other manufacturers include Hickok, Supreme, Readrite & Triplett.

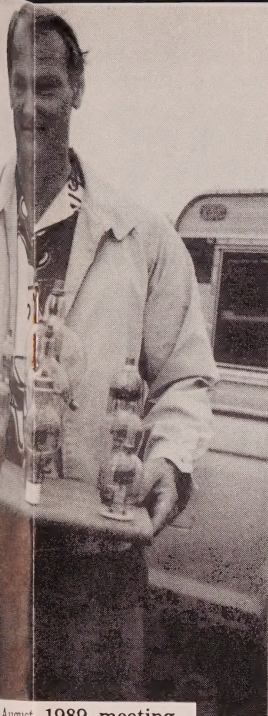
This series would not be complete without mentioning the vacuum tube voltmeter, which became the ultimate instrument until the advent of the digital voltmeter. This will be the topic for the next issue of the *Gazette*.



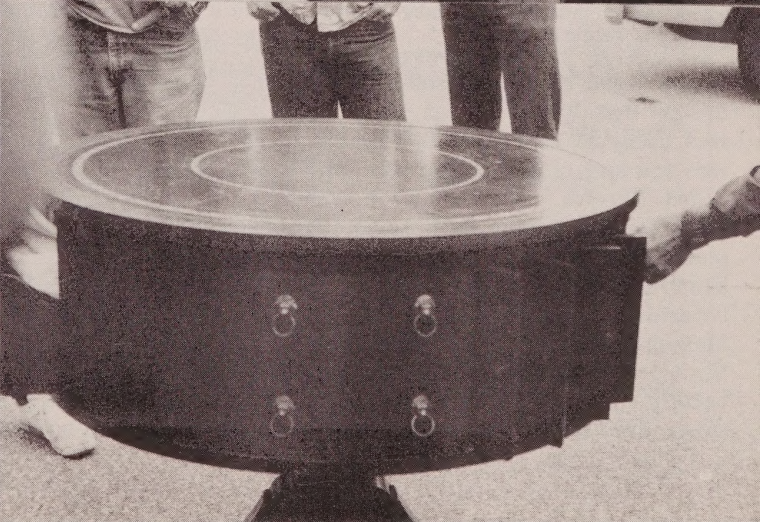
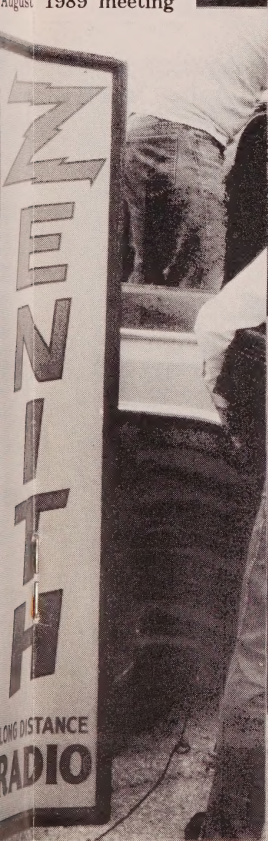


Torrance, August 1989





August 1989 meeting



BRIGHTSON TRUE BLUE RADIO TUBES

By Floyd A. Paul

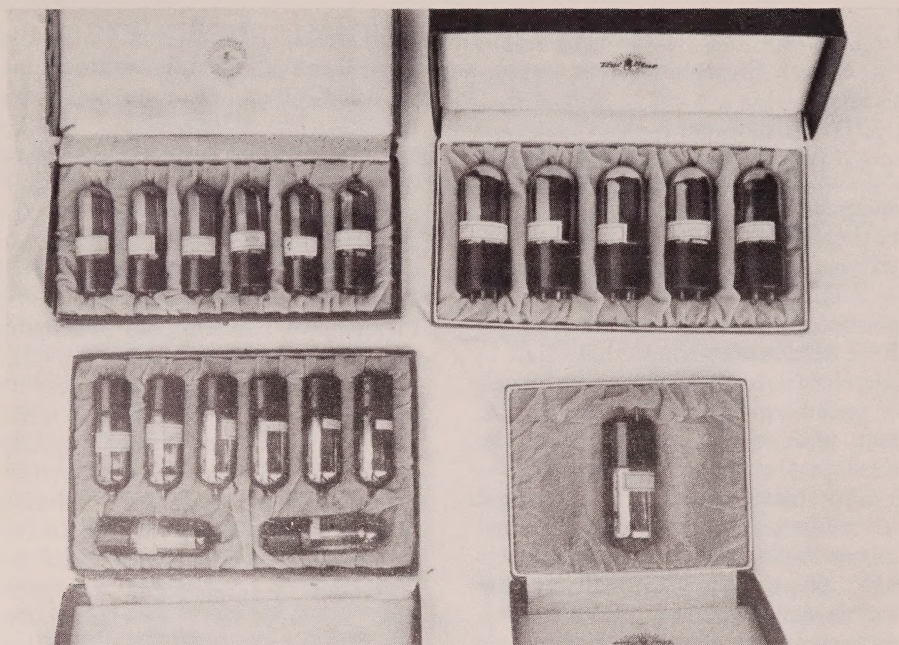
Gerald F. J. Tyne in the *Saga of the Vacuum Tube* book said that Brightson "TRUE BLUE" tubes made in 1925, used blue glass envelopes, sold in "matched sets" of three tubes, and were packed in plush-lined boxes. Tyne was partially correct but Brightson made many more configurations of tube sets. Let's go back to the beginning. George E. Brightson was noted as the founder of the Sonora Phonograph Co. In late 1924, at age 73, he decided to get into the tube business. His advertisements claimed he hired the best engineers available and designed two styles of tubes. The first tube to be marketed was similar to the '01A, both in size and electrical characteristics. It was called a "Standard" tube and had the following specifications: two-three times longer filament life, detector rating of 20-40 V., amplifier rating of 40-150 V., filament voltage at 5 V with current at 1/4 amp., sterling silver contacts, non-microphonic construction, and was sold as a one, three, and five tube set in a plush lined case for \$6.00/tube as of January, 1925.

By April of 1925 a second tube design was advertised at \$5.00. It was designed to fit in a '99 socket, was the size of a '99 tube, and was called "Power Plus" tube. It was advertised as having four times the plate and grid area, two to three times longer filament life, a filament twice the length of three volt tubes, a filament voltage of 4-6 V., and at 4 V., it drew 0.2A. Ads stated "storage battery required" for Power Plus tubes (remember '99 tubes drew

only 0.06 A. of filament current and could operate effectively on dry batteries). One Brightson ad stated that the Power Plus tube was electrically interchangeable with the Standard tube. Most likely both tubes had the same physically shaped internal elements. (The author has not broken open any tubes and compared the two designs). The author did make transconductance measurements and filament voltage and current tests and found both tubes to be the same. Power Plus type tubes came in one, three, six, and eight tube sets in a safety case. The safety cases had a striking white satin inlay and beige velvet material in the plush-lined boxes.

The tube bases of the author's twenty TRUE BLUE tubes are described as follows: The serial numbers of the Standard Tubes are between 45942 to 45969. The molded base material is orange-blackish swirl coloring. The four pins are 0.125" diameter and about 3/8" long. There is a bayonet pin on the side of the base to lock the tube into a socket. The bottom of all tube sockets has the words "Brightson-True Blue" and the letter "Z" embossed.

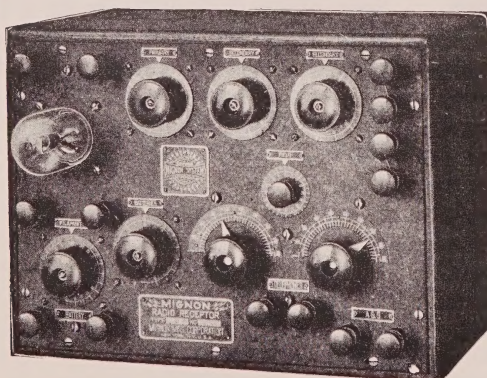
The Power Plus tubes are serially numbered between 368 and 95568. The low serial numbered tubes (under 1,000) have the word "Shaw" embossed in the base. The higher serial numbered tubes have the same inscription as the Standard tube base. The swirls of orange-blackish coloring are less dramatic on the Power Plus tube bases.



Author's Brightson TRUE BLUE tubes in boxes.

May, 1925 ads stated both styles "selling directly to dealers" at \$3.50/tube (formerly \$6.00). All tubes were serially numbered and sets were claimed to be in matched characteristics. The tubes came with a 10-day return privilege and a 60-

day written guarantee. The address always given in ads in *Popular Radio*, *Radio News*, *Talking Machine World*, and *Citizens Radio Call Book*, among others was Waldorf-Astoria Hotel, 16 West 34th St., New York.



"R.W.4" Size 12"x9"x6 1/4"

Mignon "RW4"

Undamped Wave
Receptors

NO Loose Couplers
Loading Coils
Variometers
Amplifiers
Strongest, Most Distinct Signals

FIRST GENERATION SINGLE-SIGNAL SUPERHETS

Super Shortwave Receivers and First-Rank Collector Items

Robert E. Grinder, K7AK

Commercial shortwave broadcasting in the early 1930s mushroomed worldwide. Progress emanating from exotic, faraway metropolises offered shortwave listeners welcome respite from anxieties engendered by the Great Depression. Enthusiasts who tuned their dials in search of foreign broadcasters usually found amateur operators in contact with their counterparts who lived in the distant lands.

For many listeners, the prospect of joining the amateurs proved irresistible. Radio parts were cheap and plentiful: by practicing the morse code, learning radio theory, and acquiring construction techniques, one could obtain an amateur license and build for only a few dollars a receiver and transmitter with the potential to "work" all continents.

Consequently, during the five years between 1929 and 1934, the population of radio amateurs in the United States grew 300 percent—up from 16,629 to 46,390 persons.¹ The newcomers intensified, unfortunately, an already exasperating level of interference (QRM) on the amateur bands. Amateurs at the time were relying generally on unstable, not too selective regenerative receivers, which, most likely, were battery-powered, used plug-in coils, and constructed with a triode detector followed by one or more stages of audio amplification. So as soon as a few strong stations began to transmit, all hope of copying a distant amateur was lost.

An advance in receiver sensitivity, stability, and selectivity was

attained, however, when manufacturers obtained licenses from RCA to produce superheterodynes for the general public. Advertisements in *QST* in the early 1930s exhorted amateurs to buy one of these inexpensive, conventional multiband superhets. Although they provided better selectivity, most amateurs found that as an antidote to QRM the promise of these receivers greatly overshadowed their actual benefits.

Luckily, a remarkable solution was at hand! First, James J. Lamb, *QST* Technical Editor, set forth the principles of single-signal reception in a series of *QST* articles in the June, August, and September issues of 1932. Second, enterprising manufacturers recognized in Lamb's research a basis for producing truly state-of-the-art amateur receivers; accordingly, they revised their production lines as swiftly as possible.

Lamb described in *QST* both theory and construction details for an ultra selective superheterodyne receiver. He named it the "single-signal" superhet. Consider that the basic superhet circuit calls for a first detector and a high frequency oscillator to convert the high frequency signal to the frequency of an intermediate amplifier (i.f.). (Manufacturers chose 456 kilocycles as the i.f. frequency for the single-signal superhets.) The i.f. signal is then amplified and detected again (or de-modulated in the case of phone signals) at a second detector. Single-signal reception was accomplished by including a crystal filter with variable "selectivity" and a "phasing" control, by which to attenuate or eliminate

interfering signals. Since reception of morse code was popular among the amateurs, all early single-signal receivers incorporated a CW oscillator and a control for varying its pitch or beat-note.

Single-signal reception becomes possible when the i.f. frequency is aligned exactly with the crystal filter frequency. The selectivity switch is turned to maximum selectivity compatible with a bandwidth that will pass an intelligible signal to the second detector (relatively sharp for CW; relatively broad for phone.) Any given signal will appear with two sidebands, one typically stronger than the other, on each side of the center of the signal. The phasing control is used to reduce the weaker of the two sidebands to a minimum. Thus, only one signal is received, since the phasing control has no effect on the stronger, desired sideband. A properly adjusted single-signal superhet reduces interference so markedly that twice as many signals can be accommodated within a given segment of a band. As Lamb stated (*QST*, June, 1932, p. 9): "eliminating 'the other side of zero beat,' ...immediately doubles the potential....of each and every amateur band, (and) multiplies its effective width by two."

Surprisingly, a great many amateurs who purchased first-generation, single-signal superhets apparently ignored the new feature. For example, James Millen, a prominent engineer of the National Company, expressed dismay that amateurs had "drifted into the habit of getting along without the filter, never realizing that modern single-signal equipment is almost unbelievably effective on both phone and CW. Often

unreadable signals can be brought entirely into the clear, clean, and easy to read.... We are quite proud of the single signal filter in the HRO, and we are distressed that so many amateurs have not learned how powerful a tool it is." (*QST*, January, 1936, p.49)

Contemporary collectors of these early receivers, nonetheless, appreciate Millen's pride. Manufacturers of first-generation, single-signal superhets vied with one another to produce the finest receiver that technical expertise could prescribe. They were led thereby to introduce a variety of tuning and band-changing devices, control panel configurations, and circuit refinements. In the process, they produced several distinct receivers, six of the more prominent of which are identified briefly below. The six are described in terms of their first-generation characteristics. Single-signal superhets were produced for approximately twenty years; it is the first-generation models that are particularly choice. On the one hand, they are relatively scarce and, thus, relatively valuable. On the other hand, when they are restored to their pristine, original condition and realigned to factory specifications, they constitute the best exemplars of amateur receiving equipment from the mid-1930s. Furthermore, they are magnificent communication receivers and, feature by feature, they are capable of matching or exceeding the performances of receivers designed and built a half-century later.

The six single-signal receivers will be listed in the order in which they were introduced to the amateur market in the next issue of the *Gazette*.

Restoration Tips



— Edited by Joseph C. Smolski

Refurbishing Wooden Cabinets Part Two

Repairing More Serious Damage

Once you have determined that a cabinet must be refinished, plan the job so you do things in the correct sequence. Take care of any structural repairs first, before you get into the cosmetic work.

Repairing Bad Glue Joints

Weak or loose glue joints should be dealt with first. Repair using one of the aliphatic resin woodworker's glues. These are usually yellow in color. Avoid white "arts and crafts" glues or glues sold for general household use as they are not as strong. If at all possible, take weak joints apart and clean out all the old glue before you put in the new glue. If you can't take the joint apart, work as much glue as possible into the joint. This is not nearly as effective as disassembling and cleaning out the old joint first, but there are times when it is the only practical solution. Be resourceful about getting the glue deep into the joint. Sometimes you can inject glue with a syringe. Access holes can also be drilled in inconspicuous places to help get the glue where it is needed. Clamp repaired joints until the new glue has set up thoroughly. This may mean leaving the piece clamped up overnight, but it is not a good idea to rush this step.

Don't overlook the possibility of adding glue blocks to reinforce weak joints. Glue blocks, usually cut with a triangular cross section, were often used in original construction. Adding glue blocks has the advantage of allowing you to thoroughly clean the surfaces to be bonded before applying glue.

There are a couple of things to watch out for when repairing glue

joints. Be absolutely sure that you remove all of the excess glue that squeezes out of a repaired joint before it gets a chance to set. If you let glue harden on any bare outer surface you won't be able to stain and refinish later without a lot of trouble. You also should watch out when you clamp to make sure you don't dent or mar any visible surface. If you use wooden carpenter's clamps you probably won't need to take any special precautions. If you use metal C-clamps, however, put a piece of scrap wood between the clamp and the cabinet to protect the cabinet from damage.

Repairing Bad Veneer

A little loose veneer can frequently be glued back without too much difficulty. Use putty knives, sheets of paper, hypodermic needles, syringes, and anything else you may have at hand to work a thin layer of glue in between the layers of separated wood. This sounds and looks more difficult than it usually is. Clamp up repaired veneer as you would a glue joint, observing the same precautions about excess glue and clamping damage.

Sometimes a small piece of veneer will be chipped out and missing. If the damage is confined to a small enough area, it can be patched. You will need another piece of veneer made from the same kind of wood. The piece from which you make the patch must be larger than the area to be patched. The idea is to remove a piece of damaged veneer and replace it with a piece of good veneer that is exactly the same size and shape.

The trick, of course, is making the patch fit the hole exactly. This is done by cutting the two pieces of wood simultaneously. Take the new piece of veneer and tape it down securely over the damaged area. Make sure you have the grains running in the same direction. Using an X-Acto knife or an artist's knife, carefully cut a boat-shaped patch through both layers of veneer. Carefully remove and set aside the patch you have just made and clean out the area to be repaired. Lay the patch in the hole without glue to check the fit. If the patch is thinner than the veneer you are repairing, make some paper shims to build the patch up to the level of the surface you are repairing. Once you are satisfied with the way the patch fits, glue it in place.

Occasionally a whole panel will have veneer that is too far gone to be worth fixing. The top panel is usually in worse shape than any of the others, and may be beyond reasonable repair while the others can be fixed up or even just refinished. Fortunately, replacing a sheet of veneer is not as difficult as it may seem.

Remove all of the old veneer on the bad panel, being careful not to damage any of the other panels. Smooth the underlying wood and remove every trace of dust and dirt. Sometimes it is easy to cut the veneer after it has been applied. If that is the case, cut a new piece of veneer that is larger than the panel to be covered and secure it with contact cement. Then cut the veneer to size. If the new veneer cannot be cut after is cemented in place, take your time and cut it to size first. Making a paper template first may help. Lay the new veneer in place before securing it to make certain it will fit properly.

If you have not used contact cement before, practice on some scrap first. Separately coat the two surfaces to be glued and allow them to dry. Within the time specified on the can, put the two surfaces together with a paper slip sheet between them. After you have positioned the two pieces properly, slowly withdraw the slip sheet, pressing the wood together as you go. Be very careful to avoid bubbles. Press the two surfaces together with a roller. Use a good deal of pressure to insure a secure bond.

Cabinet maker's supply houses sell veneer, veneer saws and other special tools, contact cement, contact cement thinner and other supplies that will be useful for cabinet repairs. They may also be a source of additional information and advice.

Removing The Old Finish

After the woodwork has been done you are ready to strip the old finish. There are a lot of ways to remove old finish, but some, like heat and sandblasting, are not well suited to antique radio cabinets. Chemical stripping, touched up with light sanding, is usually best.

Don't buy cheap paint remover. The additional cost of the more expensive products is well worth it. Spread lots of disposable drop cloths or papers and dress for a messy job. Use a wash-away remover and spread it on as thick as you can. Don't try to economize on remover. If you do, you will waste more time and material than you will save. After the old finish is soft, remove the sludge. If you are very careful not to damage the wood underneath, you can scrape it off with the blade of a putty knife. You can gently rub it off with a pad of medium grade steel wool, and you can wash it with a liquid. Water can be used in this step, but too much water can loosen

glue joints and lift veneer. I have used paint thinner and a pad of steel wool with good results.

You may need to repeat the stripping process to get all of the old finish off. Even after the piece is properly stripped, however, there will always be some residue left. Before you can remove the last few traces of the old finish, you must allow the piece to dry thoroughly. Then use sandpaper, steel wool, scrapers made from pieces of glass, etc. to finish the removal process.

Don't use power sanders on small cabinets. Orbital sanders and disk sanders will make swirl marks on the wood and belt sanders will go through thin veneer in nothing flat. If you do the chemical stripping properly there will be no need for power tools at this point anyway, so they are best avoided.

Sanding and sandpaper are a science by themselves. The scope of this article does not permit an in-depth discussion of sanding techniques, but there are at least two points which must be made about sanding before moving on. First is the hazard of accidentally making round corners out of corners that are supposed to be square and sanding through veneer at edges and corners. Use sanding blocks and be very careful when sanding. There is no need to get carried away and remove a lot of wood in this step. You can do irreparable damage by being careless with abrasives. All you should do is remove the last traces of the old finish and prepare the bare wood for a new one. This is finish sanding, not wood shaping. You should be working with the grain using 220 to 280 grit paper. This will be described as "very fine" or "extra fine" paper. (Continued in the next issue: Staining; Filling The Grain; Applying The Finish; Rubbed Finishes)

MINUTES

SCARS meeting Aug. 26, 1989

Velvet Turtle, Torrance, Ca.

The meeting was called to order by Walter Curry, President who greeted members, spouses, and guests.

Ed Sheldon, Secretary asked for approval of the minutes of the previous meeting as published in the Gazette. This was so moved, seconded, and passed. He also announced that the 1989 roster was available by sending a SASE to the Secretary with \$1 for the roster and \$.45 for the letter.

Mary Curry, Treasurer gave her report and she indicated that the club finances are in good shape.

Mary Ireland, Membership Secretary announced that SCARS now has a membership of over 800. She then presented to the meeting a list of the new applicants who were then voted into membership in the club.

Walter Curry said that the November meeting is planned as a two day meeting. This will be the first two day meeting in 10 years. There were a couple of other announcements.

After lunch Arlo Myers gave an interesting talk on Crystal Sets. (How to build and DX with them). Paul Thompson gave an informative talk on "Radio Collecting is my Hobby." He recalled various stages of his career as a collector from 1927 to the present time.

The meeting was adjourned at 12:50 P.M.

CONTEST ACTIVITY

No Contest in November.

Save your show and tell items for the February meeting, most likely to be held in Torrance.

For Sale or Trade & Want Ads

ADS MUST BE SUBMITTED EACH TIME FOR EACH PUBLICATION AND ARE FOR PERSONAL USE ONLY. SCARS WILL NOT PRINT REPETITIOUS ADS. ALL ADS ARE SUBJECT TO EDITING. SCARS IS NOT RESPONSIBLE FOR ANY TRANSACTION OR THE CONDITION OF ITEMS ADVERTISED.

Want; Riders 2, 11-20. Zenith 1BH571 chassis. Scott Philharmonic. Pepsi cooler radio (blue Plastic). Gary Glazier, 3031 El Cominito, La Crescenta, Ca. 91214. (818) 248 1693.

Sale; Galena crystal detector kit, \$25. Precision made, enclosed. Galena crystal detector or cats whisker, \$1. each. L. Gardner, 458 Two Mile Creek Rd., Tonawanda, NY 14150. (716) 873 0447.

Sale/Trade; Large assortment of cathedrals and tombstones. Want; Pilot tombstones and cathedrals. Note; Would the Gentleman who contacted me about his Pilot model 23 tombstone, please get in touch with me. I have cash or trades. Bill Moore, 1005 Fieldstone Ct., HSV, AL 35803. (205) 880-1207

Sale; 30 tubes such as 6C5, 6K7, 6N7, 25L6, 50L6, 12SK7, 5U4, 5Y3, 30, 27, 42, etc, \$15 for the lot. All good, used and checked. 6E5 new in box \$12., Music Master Driver, AK Phonograph attachment new in box, Amplion Horn speaker drivers, SASE, Trade; QRS Red Top tubes and a Sonatron tube. Want Radio Retailing magazines and 1932 & 1933 Radio magazines. Floyd Paul, 1545 Raymond Ave., Glendale, Ca. 91201. (818) 242 8961.

Want; Westinghouse V-2119 AM/FM chassis, complete, not necessarily working. Greg Hubbard, 825 E. Foothill Blvd., Monrovia, Ca. 91016. (818) 359 2149

Sale; I will have a good supply of Alan Douglas's Radio Mfg's of the 1920s, Vol. I & II at good prices. Also will ship prepaid. Paul Thompson, 315 Larkspur Dr., Santa Maria, Ca. 93455. (805) 934 2778.

Want; AK 447 tombstone. Any condition considered. John Hayes, 27 Highland Dr., Henniker, N H 03242, (603) 428 3053.

Want; Instructions for H. P. 330-B Distortion Analyzer, Copy OK, Ed. Sheldon, 656 Gravilla Pl., La Jolla, Ca. 92037.

Want; Collins 231-D 2-26 mc. Xmtr., Cabinets from SP-600, 32V-1 and 75A-1, Nice AR-88 and HRO-7 rcvrs., 7" RCA TV. Sam Thompson, W6HDU, Box 101, Alameda, Ca. 94501. (415) 521 1429.

Want; Old meters, galvo's instruments, working or not. Trade; Vol III for Vol I "Electricity in Every day life" by Houston or pay \$20 Post paid for Vol I. Service; Repair/replace old meters, cash or take old meters in trade. Leonard Cartwright, 113 Sea Terrace Way, Aptos, Ca. 95003. (408) 662 2977

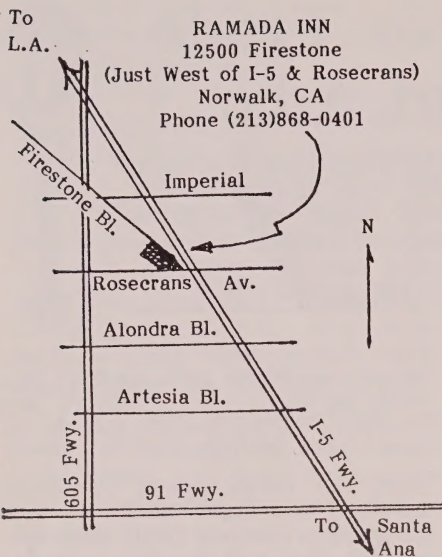
Want; Power transformer Zenith P/N 95-630N, for chassis model 1005, or suitable equivalent or complete chassis, reasonably priced. Also are their any collectors at DAC-Long Beach? Robert Wedeman, 2221 Ohio Ave., Signal Hill, Ca., 90806. (213) 494 3972.

Want; GE model 61 chassis & speaker, GE model M 51 speaker, Philco type 16 speaker & cabinet, Zenith Super VIII Chassis & eliminator, Radiola 60 lid in good veneer condition, escutcheon for Philco Jr. model 81, Sale; Riders & Sams, SASE for list. George E. Brehm, 13402 Leibacher Ave., Norwalk, Ca. 90650-3524, (213) 864 8857

Want; E. H. Scott Philharmonic in Warrington Console Cabinet. Very good to mint condition. Mike Ceklovsky, Sacramento, Ca. (916) 363 3211.

Sale; Tube tester Superior Instrument Co. W/instructions and charts, tests 01A, 99 etc. \$27. General coverage/ham band rcvrs W/manuals; National NC-400 and Hammarlund HQ-180-A/C at \$150/ each. Ward Becht, 625 Tufts Ave., Burbank, Ca. 91504, (818) 842 3444.

Want; TVs-TV's - I stock 200 to 300 vintage televisions. 1939-1960. Buy/Sell/Parts & repairs. Also buy Catalin, mirror, novelty at top dollar. Harry Poster. (201) 794 9606, Box 1883, So. Hack., NJ. 07606.



SILENT AUCTION

A silent auction is planned in November. This type of sale has each item offered individually with a bid sheet which carries a brief description of the article together with the reserve price (if applicable). Bids may be entered on this sheet at any time until the deadline when highest bidders will be announced. Members wishing to enter equipment for the auction may register the items between 9 and 11 a.m. on Saturday. There will be the usual 10% commission payable to the club.

SCARS Gazette material

Members are invited to contribute articles, brief subjects or other material to the *Gazette*. Descriptions and photos of novelty items and specialty components are also very welcome.

Please send your contributions and photos to either co-editor. See front inside cover for addresses.

Remember: Pay dues for next year, Send Registration and meal reservation money to Mary Curry, and make reservations at the Ramada Inn. See enclosed sheet with this *Gazette*)

NEW MEMBERS

Art Astor
Spencer Doggett
Robert Wilson
David Gutterrez
Arturo Uro
Wm. Chas. Farmer
Bob Murray
M. R. Everitt
Harry Poster
Steve Kostecky
Jerry Wiggle
Vivian Mason
Robert & Joyce Barker
Charles Contreras
Jim Webb
Michael & Nadie Koch
Mike Otten
Delbert Savage
Phillip Tennis
Jay Finkelman
Norman Newton
L. W. Gardner
Roger Grace
Rick Eliopoulos
Donald & Cheryl Gustafson
Michael Ceklovsky
Mike & Melody Reber
J. McCaslin & spouse
Paul Rittman
David Barker

INQUIRY

Bagh Ali, 710B Highpoint Ave., Waterloo, Ontario, Canada N2V 1G9, a newer SCARS member would like to know if anyone has any information about the Hollywood Radio and Television Institute, which was located at 7078 Hollywood Blvd. until around 1960. He wishes to contact any past students of the correspondence course, instructors, employees or any relations of the late president Mr. C. H. Mansfield of the HRTL.

* * LAST GAZETTE * *

RENEW NOW FOR NEXT YEARS MEMBERSHIP. SEND \$10.00 FOR MEMBER OR \$11.00 FOR MEMBER AND SPOUSE.